

ABSTRACT OF THE DISCLOSURE

A block copolymer, preferably a block copolymer such as poly(isoprene-block-ethylene oxide), PI-b-PEO, is used as a structure directing agent for a polymer derived ceramic (PDC) precursor, preferably a silazane, most preferably a silazane commercially known as Ceraset. The

- 5 PDC precursor is preferably polymerized after mixing with the block copolymer to form a nanostructured composite material. Through further heating steps, the nanostructured composite material can be transformed into a nanostructured non-oxide ceramic material, preferably a high temperature SiCN or SiC material.